the earth's goal alone was above the depressed horizon to be compared with 59 falls when the earth's quit alone was above the depressed horizon.

Of the 50 observed falls constituting the third group, of which the hour of fall is not stated, very few particulars other than the fact of fall are known. Although we are left without the power of saying that they indicate the same law as the other 210 falls, we find at the same time no reason to suspect the contrary. It is not unreasonable to assume that the well observed stone-falls are good representatives of the whole group, and to affirm the three propositions with which I set out as true, in general, not only for the 210 stone-falls of the first two groups, but for the whole 260 stone-falls which are represented by stones in our cabinets, and in which the stones were seen or known to fall.

It also seems a natural and proper corollary to these propositions (unless it shall appear that stones meeting the earth are destroyed in the air), that the larger meteorites moving in our solar system are allied much more closely with the group of comets of short period than with the comets whose orbits are nearly parabolic. All the known comets of shorter periods than 33 years move about the sun in direct orbits that have moderate inclinations to the Ecliptic. On the contrary, of the nearly parabolic cometic orbits that are known only a small proportion of the whole number have small inclinations with direct motion.

It also follows that in future reductions of these stone-fall observations it will be better to assume that the velocity of the stone in its orbit was not that velocity which corresponds to a parabolic orbit, but that which corresponds to the mean orbit of the comets of short period. The largeness of the perihelion distances has an evident bearing also upon the idea that these stones form the fuel of the sun.

The presentation of the argument here made has been incomplete in that the details of the investigation of individual stone-falls have been entirely omitted. Some of the determinations of the paths are, I think, as complete as I can hope to make them. But others must be regarded as provisional, since I hope to secure respecting them additional data. I hope at some future time to give a complete discussion of all these observed stone-falls. In the past I have been greatly indebted to friends for aid in collecting accounts of the falls, and I heartily thank them therefore. I shall be very grateful also in the future for unpublished observations of the stone-falls, as well as for observations that have been so published as not to be likely to have attracted attention. I bespeak the kindly aid of any who have made or have collected such observations.

NOTES.

AT the time of the Paris Exhibition in 1889, several scientific congresses will assemble in the French capital—congresses of zoology, anthropology, physiology, electricity, dermatology, hygiene. The *Revue Scientifique* expresses a hope that the great congress of electricity in 1881 may be taken as a model for all these assemblies; that attempts will be made, as far as possible, to establish uniformity in scientific nomenclature; and that men of science in other countries will not allow themselves to be deterred by international jealousies from being adequately represented at meetings whose proceedings will relate to matters of universal interest.

AT the next meeting of the British Association there will be a discussion in Section D on the vexed question of the formation of coral reefs. The discussion will be opened by Dr. Sydney J. Hickson.

ON Tuesday evening Mr. W. H. Smith, speaking of the measures with which it would be impossible to deal during the present Session, announced that the Government had decided to drop the Technical Instruction Bill. He deeply regretted that this was necessary, "but perhaps," he added, "there may not be much loss of time, as the Royal Commission on Elementary Education will report shortly on the whole question, and it will be interesting and convenient to the House to have that report before it before attempting to legislate on the subject."

A CONFERENCE of the Executive Committee of the National Association for the Promotion of Technical Education and representatives of branches and co-operating associations was held last Saturday afternoon at the Society of Arts. Afterwards the first annual meeting of the Association was held. Lord Hartington presided, and delivered an able and interesting speech, showing how the establishment of a proper system of technical instruction has been rendered absolutely necessary by the conditions of modern industrial development.

THE anniversary meeting of the Sanitary Institute of Great Britain will be held to-day at 3 p.m. The chair will be taken by Mr. Edwin Chadwick, C.B., who will present the medals and certificates awarded to the exhibitors at the exhibition held at Bolton. Dr. B. W. Richardson, F.R.S., will deliver an address, entitled, "The Storage of Life as a Sanitary Study."

ON Thursday, the 5th inst., Prof. Stokes distributed the prizes to the students at the Medical School, St. Thomas's Hospital. In addressing the students he said that he need not remind them that diligence was the great road to success, and urged that it was a duty to work for our fellow-creatures as well as ourselves. He thought that the two noblest professions were those, one of which assisted in the rectification of man's character and the other in alleviating the results of disease. In the exercise of the medical profession our best feelings were, he thought, called forth. The best foundation was a general liberal education, and although those branches of science which bear directly on medicine might be separated from their practical application, they were in themselves most interesting, and, when studied for their own sakes, were excellent mental training. He was glad to hear from Dr. Ord that St. Thomas's students were successful in athletics, as the cups exhibited testified. In the necessarily sedentary life of a medical student exercise and relaxation should not be neglected, and students did well to study the use of their muscles in athletic pursuits. Sir John Simon, on behalf of the Governors of the Hospital, thanked Prof. Stokes for distributing the prizes, and referred to the high position attained by Prof. Stokes, who, as President of the Royal Society, and representative in Parliament of the University of Sir Isaac Newton, might be said to have gained the best possible prize, but hinted that the happiness of life consisted in its endeavours rather than in its prizes. He concluded by alluding to the retirement of Dr. Ord, whose services as Dean of the Medical School during the past twelve years had been, he felt sure, much appreciated by the Governors of the Hospital, by the medical and surgical staff, and by the students.

THE French Minister of Public Instruction has authorized the following scientific missions:—M. Georges Martin is entrusted with a mission to Sweden and Norway, to study the different educational questions; M. Henry Meyners d'Estrey is sent to explore the mountainous districts of Scandinavia, and to study certain questions connected with ethnography and anthropology; M. Gaston Angelvy, civil engineer, goes to explore the tract of country between Lake Nyassa and the coast of the Indian Ocean, and to visit more particularly the basin of the river Royaurva.

THE Musée Guimet in Paris, which contains specimens of a great number of objects used in religious ceremonies, was nominally opened some days ago. It will not, however, be opened to the public for several months.

THE meeting which will shortly be held in Paris for the study of tuberculosis, under Prof. Chauveau's presidency, promises to be very interesting and successful.

THE International Congress of "Americanists" will hold its seventh session in Berlin from October 2 to 5 next. The organizing committee has just issued the programme. The first day will be devoted to questions relating to the discovery of the New World, to the history of America before the time of Columbus, and to American geology; the second to archæology; the third to anthropology and ethnography; the fourth to philology and palæography.

IT is proposed that an exhibition, to be called the "Three Americas Permanant Exhibition," shall be established at Washington in 1892 as a memorial of the discovery of America by Columbus. Both Houses of Congress have expressed approval of the scheme. While the subject was being considered by the House Committee on Commerce, Major J. W. Powell, director of the U.S. Geological Survey, pointed out, in an interesting address to the Committee, the benefits that archæologists would be likely to derive from such an exhibition, and the importance of securing without delay the necessary materials.

WE have received the volume containing a report of the Proceedings of the thirty-sixth meeting of the American Association for the Advancement of Science, held at New York in August, 1887. Among the more interesting contents of the volume is the address of Dr. Daniel G. Brinton, vice-President of the Section for anthropology. In this address Dr. Brinton presents a comprehensive review of the data for the study of the prehistoric chronology of America. Speaking of physical characteristics, he says that although the anatomy and physiology of the various American tribes present great diversity they also display a really remarkable fixedness of type. No observer well acquainted with this type could err, he thinks, in taking it for another. "Darwin says that the Fuegians so closely resemble the Botocudos [of Brazil] that they seemed members of the same tribe. I have seen Arawacks from Guiana who in the north-west would have passed for Sioux." According to Prof. J. Kollmann, the results of whose researches on this subject are accepted by Dr. Brinton, the essential physical identity of the American race is as extended in time as in space. Prof. Kollmann has analyzed the cranioscopic formulas of the most ancient American skulls, those from the alleged tertiary deposits of the Pampas, that obtained from Rock Bluff, Illinois, the celebrated Calaveras skull from California, and one from Pontemelo in Buenos Ayres of geologic antiquity. The conclusion at which he arrives is that the earliest Americans—those who were contemporaries of the fossil horse and other long since extinct quadrupeds—possessed the same racial character as the natives of the present day, with similar skulls and a like physiognomy.

ON Monday the atmosphere in the Channel became so rarefied that objects could be seen with extraordinary distinctness at a distance of between 30 and 40 miles from Dover and Folkestone. The *Times* says that the lighthouse at Cape Grisnez, Calais, and the dome of the Cathedral, and Napoleon's Column at Boulogne could be distinctly seen with the naked eye, and every prominent object could be picked out along the French coast. The distance from Dover to Boulogne as the crow flies is 28 miles, and the column is about 2 miles further inland.

THE following telegram from Valparaiso was lately received at Buenos Ayres:—"A rather severe earthquake shock was experienced in Santiago on Sunday, May 13, at 11.30 a.m., and considerable alarm prevailed in consequence of May 13 being the anniversary of the great earthquake in 1647, which laid a large portion of the city in ruins, and which was the origin of the procession of the Señor de Mayo. A severe but short vertical shock occurred here on Tuesday, the 15th, at 8.5 p.m. A strong earthquake shock was felt at Yumbel on the 10th, at 9.15 p.m. A smart earthquake shock, preceded by a long subterranean noise, was experienced in Santiago on Wednesday, the 16th, at 4.55 a.m. The shock was also felt here, but slightly." At Buenos Ayres several earthquake shocks were experienced on the night of Monday, June 4. According to the *Buenos Ayres Standard*, a slight shock was felt at 12.18. Three seconds afterwards a very strong shock occurred, and the oscillation was slow and pronounced. The walls of houses and all movable articles were shaken, and a third shock, which seemed to be nothing more than the subsidence of the second, occurred two seconds afterwards. No serious accident followed the occurrence. Several families, however, were so startled that they rushed out of their houses and sought refuge in the open square. The shocks were felt with more or less intensity all over the province of Buenos Ayres and in Montevideo. As felt in Montevideo the shock passed from south-south-west to north-north-east.

AT the meeting of the French Meteorological Society on June 5, M. Angot communicated a paper on the climate of St. Martin-de-Hinx (Landes) based on observations made since 1864, in which he has determined the diurnal variations of each element. He also announced that as soon as funds were obtained he intended to publish *in extenso* several long series of observations. At several of the places mentioned, including Paris, Marseilles, &c., the observations date from far into the last century. M. L. Teisserenc de Bort communicated a note relative to two earthquakes which occurred at 8 p.m. on the 4th, and at 5 p.m. on May 14 last, in the department of Puy-de-Dôme. M. Moureaux remarked that the magnetograms at Parc-St.-Maur showed no special disturbances at those times. M. Renou paid a tribute to the memory of M. Hervé-Mangon, to whose exertions the separation of the meteorological from the astronomical service was due. This memoir will be printed in the Bulletin of the Society.

A NEW base and its series of salts, belonging to the remarkable group known as "platinum bases," have been obtained by Dr. Heinrich Alexander, of Königsberg. The base itself has the composition $Pt(OH)_2 . 4NH_3O$, and may be considered as the hydroxylamine-platinum compound corresponding to the free base of the well-known green salt of Magnus, $Pt(OH)_2 . 4NH_3$. The chloride of the series was prepared some little time ago by Lossen, but can be most readily obtained, according to Alexander, by mixing a 10 per cent. solution of potassium platinous chloride with hydrochloride of hydroxylamine and an alkaline carbonate. On standing, the deep red liquid becomes decolourized, and the reaction is completed when a yellowish precipitate commences to settle; on the addition of more alkali the new base is immediately and quantitatively precipitated. The precipitate is then dissolved in the calculated quantity of cold dilute hydrochloric acid, and on passing a gentle stream of hydrochloric acid gas through the solution, or on the addition of absolute alcohol, fine colourless needles of the chloride $PtCl_2 . 4NH_3O$ are deposited. These needles are very soluble in water, but, like many other chlorides, are insoluble in concentrated hydrochloric acid. The free base is at once precipitated from this salt on the addition of stronger bases, such as potash and soda, or even ammonia. It is perfectly stable in the air and is extremely insoluble in water and alcohol; it behaves exactly like a true metallic hydroxide, dissolving in acids with formation of the corresponding salts. The sulphate $PtSO_4 . 4NH_3O$, which is best obtained by treating the base with the calculated quantity of sulphuric acid upon a water bath, crystallizes well in short, heavy prisms, difficultly soluble in cold but better in hot water, the crystals deposited from which contain a molecule of water of crystallization. When heated above 100° C. it violently decomposes with detonation. In a similar manner the phosphate and oxalate of the series were obtained pure and analyzed. The former separates out in microscopic crystals while the latter is deposited in beautiful stellar aggregates of long needles. During the course of the work, two interesting isomeric salts were obtained. When the base is treated with excess of warm hydrochloric acid and the solution allowed to cool, yellow needles of a chloride of the composition $PtCl_2 . 2NH_3O$ fall out. If however potassium platinous chloride be added to dilute solutions of the first chloride, $PtCl_2 . 4NH_3O$, beautiful violet needles of an isomeric salt, $PtCl_2 . 4NH_3O + PtCl_2$, separate out. The two substances are quite distinct, though possessing the same empirical formula, reminding one of the remarkable isomerism so frequently met with among the compounds of carbon.

UNDER the heading of "Psychology" the *American Naturalist* for May has a curious paragraph on "The Monkey as a Scientific Investigator." In the interesting little "Zoo" connected with the National Museum at Washington, there is a fine male grivet monkey (*Cercopithecus erythrœa*), who shares a large cage with four opossums. To human beings he shows himself anything but amiable, but "he takes kindly to his strange companions, and they have been the best friends from the first." The attention of the attendant was lately drawn to the cage by the excitement of a crowd in front of it, and on going to ascertain the cause he was surprised to see the monkey seated in the middle of the cage, with one of the opossums lying quietly on her back on his lap, and her head under his arm. "The monkey had just discovered the marsupial pouch of the opossum, and was diligently investigating it. Had he not been a close observer it certainly would have remained unseen, for it was so tightly closed as to be perfectly invisible in its normal condition. The monkey carefully lifted the outer wall of the pouch, and peered into the cavity. Then he reached in with his hand, felt about for a moment, and to the astonishment of everybody took out a tiny young opossum, about 2 inches long, hairless, blind, and very helpless, but alive and kicking. Jock held it up to the light, where he could get a good view of it, scrutinized it with the air of a *savant*, and presently returned it to the pouch, very carefully. After replacing it he looked into the pouch again, and presently drew out another for examination, which he looked at with solemn interest, smelt it, and then carefully put it back. It was thus it became known to the attendants that the old female opossum had the young ones, which had previously been looked for in vain."

SOME time ago an English resident at Canton, Mr. Pitman, bought a curious monstrosity—a sow with six legs. The front part of the body is simple, that is, the animal has one head, one thorax, and two front legs. Behind, all the organs are double. M. Bézaure, the French Consul at Canton, persuaded Mr. Pitman to let him have this strange creature for the Paris Museum of Natural History, where it may now be seen. It is white, with great black spots, and appears to be in perfect health. An account of it, by M. Charles Brongniart, of the Museum of Natural History, appears in the current number of *La Nature*. The separation of the two trunks seems to begin after the dorsal vertebræ; but the animal is so fat that this cannot be precisely determined.

MANY women who are anxious to obtain a University training cannot afford to pay the fees required for residence at one of the colleges or halls in connection with the old Universities. For their benefit Aberdare Hall, Cardiff, was founded; and we are glad to learn that the institution has made steady progress since it was opened in 1885. This year the number of students has doubled. At University College, Cardiff, the students at Aberdare Hall are taught on the same footing as the men students. They generally work for London University degrees, but when they wish to prepare for other examinations the necessary help is gladly given.

THE Irish Exhibition in London has published a useful "Handy-book of Reference for Irishwomen." It is edited by Miss Helen Blackburn, and Mrs. Power Lalor contributes a preface. The volume presents full and accurate information as to women's work in Ireland, and as to the schools and classes in which they may obtain scientific and technical training.

THE annual report of the Geological and Natural History Survey of Canada for 1886 (vol. ii. new series) has been issued. It embodies the results of some of the work of preceding years, and not all of the work of the year for which it is dated. The volume consists of thirteen parts, separately paged and lettered, and relating to various portions of the Dominion from Nova Scotia to British Columbia, and northward to the Arctic Ocean. The parts were issued separately with accompanying maps and illustrations in pamphlet form, as they were received from the printers.

THE new number of the *Mineralogical Magazine* contains, besides abstracts and a full index to vol. vii., the following papers:—On the development of a lamellar structure in quartz-crystals by mechanical means, by Prof. John W. Judd, F.R.S.; on the polysynthetic structure of some porphyritic quartz-crystals in a quartz-felsite, by Major-General C. A. McMahon; on kaolinite, by Alan Dick; note on the occurrence of celestite containing nearly 14 per cent. of free sulphur, by H. J. Johnston-Lavis; notes on hornblende as a rock-forming mineral, by Alfred Harker.

M. VAYNIÈRE has brought out the second of the four parts of his Atlas of invertebrate animals.

IN a circular issued by Mr. Edward S. Holden, director of the Lick Observatory, it is stated that the Observatory buildings will be open to visitors during office hours every day in the year. An hour or so, he points out, can be profitably occupied in viewing the various instruments, and the rest of the stay can be well spent in walks to the various reservoirs, from which magnificent views of the surrounding country can be had. With regard to the admission of visitors at night, Mr. Holden says that, for the present, visitors will be received at the Observatory to look through the great telescope every Saturday night between the hours of 7 and 10, and at these times only. Whenever the work of the Observatory will allow, other telescopes will also be put at the disposition of visitors on Saturdays between the same hours. Mr. Holden hopes that, by setting apart these times for visitors (which allow freer access to the Lick Observatory than is allowed to any other Observatory in the world) all interested may be able to arrange their visits in conformity to them; and that the remaining hours of the week will be kept entirely uninterrupted, in order that the astronomers may do the work upon which the reputation of the Observatory entirely depends.

FROM a report signed by Mr. Edward S. Holden we learn that the trustees of the Lick Observatory, acting on his advice, have provided a photographic attachment to the 36-inch telescope, which will enable this to be used as a gigantic camera for photography. It cannot be used to make maps according to the scheme of the Paris Congress, since that scheme requires a focal length of 13 feet, while that at the Lick Observatory will be 47. But a vast deal of work may be done in connection with applications to astronomy other than the construction of the chart. In the photography of the moon, of the planets, of nebulæ, and comets the Lick telescope will have some important advantages. "But," says Mr. Holden, "it is in the photography of stars—of double and binary stars, of all the fainter stars, of all star clusters—that the Lick photographic telescope will find its chief application and demonstrate its immense superiority. One of the first works to be done is to photograph the vicinity of all the brighter stars, for the discovery of fainter companions, and for the permanent record of their surroundings. A certain number of stars will be selected and photographed at regular intervals throughout the year. Measures made upon these plates will give the data by which the distances of these stars from the earth can be determined. Similar measures upon photographs of star clusters may serve to give us a clue to the laws which govern the internal structure of these wonderful objects. A continuous series of photographs of the brighter parts of one of the brighter comets will certainly throw a flood of much needed light upon the process of their development."

THE additions to the Zoological Society's Gardens during the past week include a White-thighed Colobus (*Colobus vellerosus* ♂), a Campbell's Monkey (*Cercopithecus campbelli* ♀), a White-Collared Mangabey (*Cercocebus collarii*), a Bosman's Potto (*Perodicticus potto*), a Marabou Stork (*Leptoptilus crumeniferus*), a Black Sternothere (*Sternothærus niger*) from West Africa, presented by Mr. H. H. Johnston, F.Z.S.; two Black-Bellied Sand Grouse (*Pterocles arenarius*) from North Africa, presented by Sir Kirby Green, R.C.M.G.; an Eyed Lizard (*Licerta ocellata*), European, presented by Mr. J. Hopson; a Patas Monkey (*Cercopithecus patas* ♀), two West African Love Birds (*Agapornis pullaria*) from West Africa, a Cormorant (*Phalacrocorax carbo*), British, three Scarlet Ibises (*Eudocimus ruber*) from South America, five Common Chameleons (*Chamæleon vulgaris*) from North Africa, deposited; a Chipping Squirrel (*Tamias striatus*) from North America, five Lesser Pintailed Sand Grouse (*Pterocles exustus* 1 ♂, 3 ♀) from Abyssinia, two Modest Grass Finches (*Amadina modesta*) from Australia, purchased; a Moor Monkey (*Semnopithecus maurus* ♂) from Java, received in exchange; a Spotted Tinamon (*Nothura maculosa*), two Cambayan Turtle Doves (*Turtur senegalensis*), three Chiloe Widgeon (*Mareca chilœnsis*), three Slender Ducks (*Anas gibberifrons*), two Australian Wild Ducks (*Anas superciliosa*), three Mandarin Ducks (*Æx galericulata*), eleven Chilian Pintails (*Dafila spinicanda*) bred in the Gardens.

OUR ASTRONOMICAL COLUMN.

THE MARKINGS ON MARS.—M. Perrotin, in a more recent communication to the Paris Academy of Sciences, states that the district of *Libya*, the disappearance of which he had recorded a week or two earlier (NATURE, vol. xxxviii. p. 185), has undergone a further change, the "sea" which had so recently covered it having retreated again for the most part, so that the present appearance of the district is intermediate between that which it recently presented and that under which it was seen in 1886. Of the canals M. Perrotin has noticed four, three of which are double, which, starting from the "seas" of the southern hemisphere near the equator, and following a nearly meridional course, extend right up to the north polar ice cap, being traceable across the "seas" which immediately surround the latter. No other observer as yet seems to have traced these canals for such a distance, and across "seas" as well as continents. This observation renders their true character more puzzling than ever, and seems effectually to dispose both of M. Fizeau's just published theory, which explains them by the analogy of the rifts in terrestrial glaciers, Mars being assumed to be in a glacial condition, and of that of Mr. Proctor, who ascribes them to the varying appearances of the Martial rivers when clearly seen or partly veiled by local mists. More detailed observations of these strange markings are needed, and it is to be much desired that as many as possible of actual drawings made at the telescope should be published. It is possible that the comparison of sketches made with different observers and with different apertures, would throw much light on the subject; if, for instance, the appearances were partly optical and due to some effect of diffraction, it would soon become apparent.

COMET 1888*a*, SAWERTHAL.—The remarkable change in brightness which this object displayed about May 20 (NATURE, vol. xxxviii. p. 114) seems to have been well observed, and there is a general agreement that the increase in brightness amounted to 2½ or 3 magnitudes. At Dorpat Herr Blumbach estimated the comet as 9–10 on May 19, and as 7–8 on May 22. Dr. Franz, at Konigsberg, considered the increase as amounting to 3½ magnitudes, estimating the brightness as 5 8 on May 21, whilst Dr. Kammermann, at Geneva, on May 25, reckoned the comet as between the 5th and 6th mags., and the increase as having been between 2 and 3. Father Fenyi, of the Kalocsa Observatory, finds the change of magnitude about the same, but estimates the absolute brightness differently; the recorded magnitudes being: May 20, 9·3; May 21, 7·8; May 22, 6·8; and May 23, 6·8. Father Fenyi also supplies (*Astr. Nach.*, No. 2844) a series of sketches of the comet, showing the changes of shape which have accompanied the changes of brightness, and especially the development about May 28 of a sort of wing on either side of the head. These wings appear, however, to have been seen earlier at other observatories, thus Herr Kortazzi, at Nicolaiew, observed them on May 24, and Herr Wutschichowski gives a beautiful drawing of them under date May 25 (*Astr. Nach.*, No. 2845). The comet does not appear to have been satisfactorily observed with the spectroscope during this period of unusual brilliancy. The outburst was soon over, and the comet speedily returned to its former faintness.

The following ephemeris (*Astr. Nach.*, No. 2838) is in continuation of that given in NATURE, vol. xxxviii. p. 186.

1888.	R.A. h. m. s.	Decl. ° ′	Log *r*.	Log Δ.	Brightness.
July 13	1 7 18	50 32 8 N.	0·3352	0·3306	0·029
15	1 7 42	50 55·4			
17	1 7 56	51 17·2	0·3459	0·3331	0·028
19	1 8 2	51 38·4			
21	1 7 57	51 58·8	0·3563	0·3353	0·026
23	1 7 43	52 18·5			
25	1 7 19	52 37·4	0·3664	0·3372	0·025
27	1 6 45	52 55·4			
29	1 6 0	53 12·6	0·3762	0·3389	0·023
31	1 5 6	53 28·9			
Aug. 2	1 4 1	53 44·2 N.	0·3857	0·3405	0·022

The brightness on February 18 is taken as unity.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1888 *JULY* 15–21.

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on July 15

Sun rises, 4h. 3m.; souths, 12h. 5m. 44·2s.; sets, 20h. 8m.: right asc. on meridian, 7h. 40·8m.; decl. 21° 26′ N. Sidereal Time at Sunset, 15h. 44m.

Moon (at First Quarter July 16, 12h.) rises, 11h. 7m.; souths, 17h. 21m.; sets, 23h. 22m.: right asc. on meridian, 12h. 56·6m.; decl. 0° 35′ S.

Planet.	Rises. h. m.	Souths. h. m.	Sets. h. m.	Right asc. and declination on meridian. h. m.	° ′
Mercury	3 44	11 24	19 4	6 58·6	18 0 N.
Venus	4 4	12 11	20 18	7 45·9	22 9 N.
Mars	12 56	18 2	23 8	13 38·3	11 15 S.
Jupiter	15 38	20 2	0 26*	15 38·0	18 36 S.
Saturn	5 19	13 6	20 53	8 41·8	18 56 N.
Uranus	11 34	17 14	22 54	12 50·3	4 42 S.
Neptune	0 39	8 25	16 11	3 59·5	18 53 N.

* Indicates that the setting is that of the following morning.

Comet Sawerthal.

July.	h.	Right Ascension. h. m.	Declination. ° ′
15	0	1 7·5	50 45 N.
19	0	1 8·0	51 28

Occultations of Stars by the Moon (visible at Greenwich).

July.	Star.	Mag.	Disap. h. m.	Reap. h. m.	Corresponding angles from vertex to right for inverted image. ° °
17	ξ′ Libræ	6	19 22	19 40	145 176
18	θ Libræ	4½	21 2	21 23	8 339
19	49 Libræ	5½	0 20	near approach	202 —
19	B.A.C. 5700	6½	22 26	23 14	142 232